BRIGHTNESS ENHANCEMENT OF DIODE LIGHT SOURCES

ABSTRACT OF THE DISCLOSURE

Briefly, the present invention relates to a system for combining the output light beams of a plurality of semiconductor laser diodes, for example, to form a combined light beam with increased brightness. The output light beams from the semiconductor laser diodes are coupled to a plurality of optical fibers forming a fiber coupled diode array. The optical fibers forming the fiber coupled diode array are coupled to a dual clad optical fiber with a central core. The output light beams from the optical fibers from the fiber coupled diode array are coupled to the inner cladding of a dual clad optical fiber. A Stokes seed source is applied to the central core, and the inner-clad diode light acts as a pump source to amplify the Stokes beam by stimulated Ramans scattering, thereby transferring power from the inner cladding into Stokes beam in the central core. The configuration in accordance with the present invention provides a Stokes output light beam with a relatively higher brightness level than known techniques which merely combine the output light beams from a plurality of semiconductor diodes and eliminates the need for a relatively precise alignment and the cost associated with the lenses required by known systems.